

In re Patent Application of:

RAYNOR ET AL.

Serial No. **10/677,850**

Confirmation No. **5132**

Filed: **October 2, 2003**

In the Claims:

Claims 1-38 (Cancelled).

39. (Previously Amended) A method of attaching a sensor and a housing to opposite sides of a mounting substrate, the sensor comprising an integrated circuit die having a sensing face and comprising a sensing area and at least one signal output contact thereon, the mounting substrate having a circuitry face and at least one signal input contact thereon, the mounting substrate also having an opening therethrough and at least one landing adjacent the opening, the method comprising:

positioning the sensing area over the opening so that the at least one signal output contact of the sensor contacts the at least one signal input contact of the mounting substrate;

attaching the sensor to the mounting substrate in a flip-chip arrangement with at least one bump bond interposed between the at least one signal output contact of the sensor and the at least one signal input contact of the mounting substrate to pass signals therethrough, with the at least one bump bond being associated with the at least one landing so that the at least one bump bond is aligned with the at least one signal output contact of the sensor; and

positioning the housing in contact with the mounting substrate so that the housing and the sensor are in alignment.

40. (Previously Presented) A method according to Claim 39, wherein dimensions of the opening are at least equal to

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dimensions of the sensing area.

41. (Previously Presented) A method according to Claim 39, wherein dimensions of the opening are at least equal to dimensions of the sensing face.

Claim 42 (Cancelled).

43. (Previously Presented) A method according to Claim 39, wherein the at least bump bond comprises a plurality of bump bonds around a perimeter of the opening.

44. (Previously Presented) A method according to Claim 39, wherein positioning the sensing area comprises pressing the sensor against the mounting substrate; and wherein attaching the sensor to the mounting substrate comprises heating the at least one bump bond so that it melts to draw the sensor into alignment over the opening.

45. (Previously Presented) A method according to Claim 39, wherein the sensor comprises at least one of a charge-coupled device and a CMOS image sensor.

46. (Previously Presented) A method according to Claim 39, wherein the sensing area comprises an image sensing area.

47. (Previously Presented) A method according to Claim

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46, wherein the image sensing area comprises a photodiode array.

48. (Previously Presented) A method according to Claim 39, wherein the sensor comprises a light sensitive sensor for use with a bio-optical system.

49. (Previously Presented) A method according to Claim 39, wherein the mounting substrate comprises a printed circuit board.

50. (Previously Presented) A method according to Claim 39, wherein the housing comprises a formation extending therefrom; and wherein positioning the housing comprises mating the formation with the opening in the mounting substrate.

51. (Previously Presented) A method according to Claim 39, wherein the housing comprises projections extending therefrom; wherein the mounting substrate includes additional openings therethrough; and wherein positioning the housing comprises mating the projections with the additional openings in the mounting substrate.

52. (Previously Presented) A method according to Claim 39, wherein the housing comprises a lens.

53. (Previously Presented) A method according to Claim 52, wherein the lens is separable from the housing.

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54. (Previously Presented) A method according to Claims 52, wherein the lens is threadably attached to the housing.

55. (Previously Presented) A method according to Claim 39, wherein the housing comprises a matter delivery system for delivering a bio-optical analyte to the sensor.

56. (Previously Presented) A method according to Claim 55, where the matter delivery system further delivers a bio-optical reagent to the sensor.

57. (Previously Amended) A method of attaching a sensor to a mounting substrate, the sensor comprising an integrated circuit die having a sensing face comprising a sensing area and at least one signal output contact thereon, the mounting substrate having a circuitry face and at least one signal input contact thereon, the mounting substrate also having an opening therethrough and at least one landing adjacent the opening, the method comprising:

positioning the sensing area of the sensor over the opening in the mounting substrate; and

attaching the sensor to the mounting substrate in a flip-chip arrangement with at least one bump bond interposed between the at least one signal output contact of the sensor and the at least one signal input contact of the mounting substrate

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to pass signals therethrough, with the at least one bump bond being associated with the at least one landing so that the at least one bump bond is aligned with the at least one signal output contact of the sensor.

58. (Previously Presented) A method according to Claim 57, wherein dimensions of the opening are at least equal to dimensions of the sensing area.

Claim 59 (Cancelled).

60. (Previously Presented) A method according to Claim 57, wherein the at least bump bond comprises a plurality of bump bonds around a perimeter of the opening.

61. (Previously Presented) A method according to Claim 57, wherein positioning the sensing area comprises pressing the sensor against the mounting substrate; and wherein attaching the sensor to the mounting substrate comprises heating the at least one bump bond so that it melts to draw the sensor into alignment over the opening.

62. (Previously Presented) A method according to Claim 57, wherein the sensor comprises at least one of a charge-coupled device and a CMOS image sensor.

63. (Previously Presented) A method according to Claim

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57, wherein the sensing area comprises an image sensing area.

64. (Previously Presented) A method according to Claim 57, wherein the sensor comprises a light sensitive sensor for use with a bio-optical system.

65. (Previously Presented) A method according to Claim 57, wherein the mounting substrate comprises a printed circuit board.

Claims 66-80 (Cancelled).